

Montana Weather/Precipitation Summary

April 2017 NOAA's National Weather Service Great Falls Montana

For April, the average upper level flow was generally westerly. There was a trough of low pressure along the west coast and a weak ridge of high pressure centered along the continental divide (Fig. 1). This produced generally above normal temperatures in the state (Fig. 2). Some areas reported below normal averages over the northern tier. Above normal precipitation fell across the west and southern portions of the state, with below normal most other areas (Fig. 3). Wind averages were near to above normal.

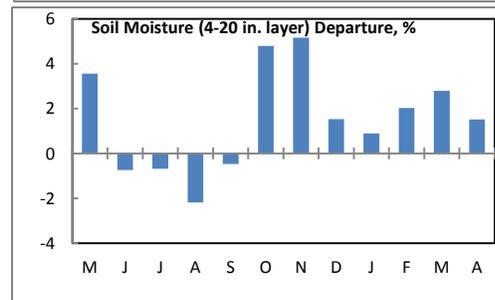
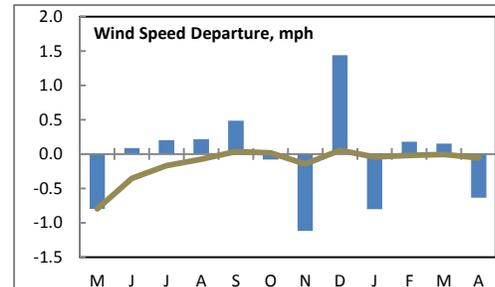
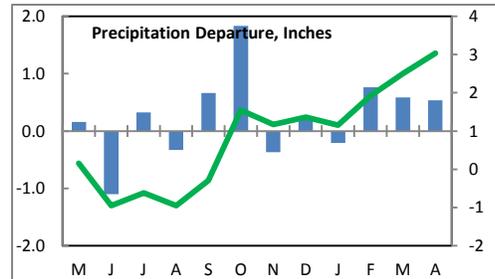
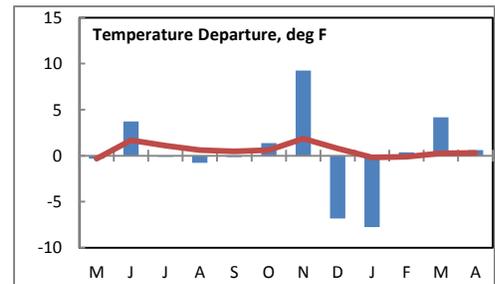
After a mild March, temperatures in April were closer to normal. The statewide composite of 43.2° was only 0.3°F above normal. The red line on the graph to the right shows the cumulative 12-month departure from normal, which is about 0.4°F above normal. The temperature anomalies ranged around three degrees below normal in northwest Montana to two degrees above normal in extreme southeast Montana (Fig. 2). The warmest average monthly temperature was 50.6°F at Hardin and the coolest was 25.4°F at Point Six (Missoula). This was the 68th warmest April of record (of 138 years). Six of the last 12 months have had warmer than normal temperatures.

The monthly departure from normal for precipitation across Montana is shown in Figure 3. The wettest areas were across western and southern Montana. The highest precipitation amount recorded was 11.20-inches at Moss Peak SNOTEL (Lake). Elsewhere, 8.10" was reported at Crystal Lake SNOTEL (Fergus), and 4.27" near Hungry Horse. Cut Bank had their 4th wettest April of record, while Great Falls and Kalispell had their 3rd wettest of record. Statewide, this month averaged 1.88", or 0.53" above normal. This was the 13th wettest of record and the wettest since 2016. The statewide composite precipitation for the past 12 months is 3.04" above normal. The green line on the graph to the right shows the cumulative 12-month departure from normal. Eight of the past 12 months have measured above normal precipitation.

Snow amounts were generally below normal. The statewide average was 4.3-inches, or 3.2-inches below normal. This was the 52nd lowest snow total of record. Mystic Lake reported the largest amount (33").

The statewide average winds were weaker than normal over most of the state. Statewide, the month ranked as the 9th calmest April of record. The statewide composite average was 9.2-mph, 0.6-mph below normal. The brown line of the wind graph to the right shows the 12-month cumulative statewide wind departure from normal. The 12-month average is running near normal. Seven of the past 12 months have had above normal average speeds. The fastest average speed was 19.6-mph at Deep Creek RAWS (Glacier). At lower elevations, the strongest average was 14.7 mph at Browning. The strongest wind gust was 75 mph at Livingston during a thunderstorm on the 7th.

Soil moisture in April ranks as the 5th highest of record (records from 1995). The statewide composite soil moisture value is the highest since 2015.



Refer to NEIC's State of the Climate report for the latest monthly discussion:

<http://www.ncdc.noaa.gov/sotc/>

Apr 1-7

The first week was a changeable week. A storm system brought cooler temperatures to most of the state on the 3rd and 4th, with nearly two-feet of snow in the Highwood Mountains. Thunderstorms associated with a cold front brought strong winds and downed power lines to portions of western and central Montana on the 7th. Gusts reached 67 mph at Cut Bank and 75 mph at Livingston.

Apr 8-30

The last three weeks of April brought nearly normal temperatures. A storm brought snow to much of the state on the 9th and 10th. Amounts of a foot of snow or more were reported in the Highwood Mountains, the mountains around Helena, the Snowys and in southeastern Montana. Even the Great Falls and Billings areas received from 4-8-inches of snow. The rest of the month brought occasional weak thunderstorms with several days of small hail reported. Some of these storms produced so much small hail that the ground was white and slippery roads caused slide-offs. On the 22nd, up to 8-inches of snow fell in the Red Lodge/Nye areas. A thunderstorm on the 23rd produced 1" hail at Winnett. A ropy funnel cloud was spotted near Conrad. On the 24th, a funnel was again seen near Logan. On the 28th, a cooler spell and storm across southern Montana brought 7-10-inches of snow from the southwest Mountains to the Red Lodge area.

Precipitation/convection

Severe convective weather occurred on one day in April, one day above normal.

Water-year-to-date and calendar-year summary

The composite statewide average temperature for the water year through April was 31.1°F (0.3°F above normal). This was the 60th warmest of record and the coolest since 2014. The calendar year average temperature is 29.6° (0.6°F below normal) and the 55th warmest of record.

The composite precipitation was 9.75", or 3.51" above normal. September, October, February, March and April were particularly wet. This is the 2nd wettest such period of record, and the wettest since 1881. The calendar year average precipitation is 4.33" (0.69" above normal) and the 28th wettest of record.

Composite snowfall was 64.2". This is 10.3" above normal and the heaviest period snowfall since 2014. This is the 19th highest period snowfall amount. The calendar year average snowfall is 14.7" (17.5" below normal) and the 2nd lowest of record.

For winds, the average state wind speed was 9.0-mph, or normal. This was the 24th calmest year of record. The calendar year average wind speed is 9.4-mph (normal) and the 22nd lowest of record.

April summary information:

High Temperature	85°F at Four Mile RAWs (Sweet Grass) (13 th)	Greatest Precip	4.27" near Hungry Horse (Flathead)
Low Temperature	0°F near Harlowton (Wheatland) (21 st)		11.2" at Moss Peak SNOTEL (Lake)
Warmest Ave Temp	50.6°F at Hardin	Peak Wind Gust	83 mph near Pendroy (3 rd)
Coolest Ave Temp	25.4°F at Point Six (Missoula)		
Range of Temp departures	-3.3°F at Thompson Falls to 2.6° at Broadus (Powder River)	Highest Ave Wind	14.7 mph at Browning 19.6 mph at Deep Creek RAWs (Glacier)
21 city mean monthly Temperature/Normal	43.2/42.8F normal. 68 th warmest of record (since 1880). 51 st percentile.	20 city mean monthly wind speed/Normal	9.2 mph/9.8 mph; 9 th calmest of record (since 1936). 14 th percentile.
22 city mean monthly precipitation/Normal	1.88"/1.34" – 140% of normal. 13 th wettest of record (since 1880). 90 th percentile.		

**Historical Rank of Precipitation (inches)
for the Current Month and Water Year to Date**

Location	Apr	% of Norm	Rank	Pcntl	Oct 1 – Apr 30	% of norm	Rank	Pcntl	Years
Baker	0.82	92%	14	68	2.63	66%	18	94	19
Billings	3.34	192%	6	4	12.58	182%	1	0	116
Belgrade	1.98	124%	17	20	7.16	122%	15	18	80
Butte	2.20	188%	12	9	7.14	151%	17	13	122
Cut Bank	2.18	279%	4	3	6.39	238%	2	1	110
Dillon	1.88	176%	9	10	5.53	160%	2	1	77
Glasgow	0.52	61%	65	52	5.56	161%	17	14	117
Great Falls	3.58	252%	3	2	8.34	157%	11	8	125
Havre	0.66	79%	81	58	6.18	182%	12	8	137
Helena	0.72	73%	82	59	5.42	143%	47	34	138
Jordan	0.51	47%	16	88	4.43	121%	9	44	19
Kalispell	2.26	182%	3	2	15.95	185%	1	0	123
Lewistown	2.66	189%	9	7	8.52	144%	13	10	121
Livingston	2.34	132%	14	11	9.87	165%	2	1	114
Miles City	0.98	72%	74	53	3.10	75%	114	81	140
Missoula	1.36	112%	41	29	11.31	169%	7	4	136
Mullan Pass	4.66	154%	6	7	46.09	161%	2	1	76
Wolf Point	0.88	94%	8	39	3.23	94%	5	22	19
Glendive	0.82	64%	72	58	4.31	97%	59	50	118
Sidney	0.72	69%	51	64	4.35	95%	34	43	77
BZN-MSU	3.29	143%	14	9	12.51	137%	7	4	138
W Yellowstone	2.90	179%	9	8	23.92	185%	3	2	96

Rankings and Percentiles are 1=driest, higher numbers=wetter.

For an automated version of this chart, updated daily, go to

<http://www.wrh.noaa.gov/tfx/dx.php?wfo=tfx&type=&loc=products&fx=PCPNTOTALS>

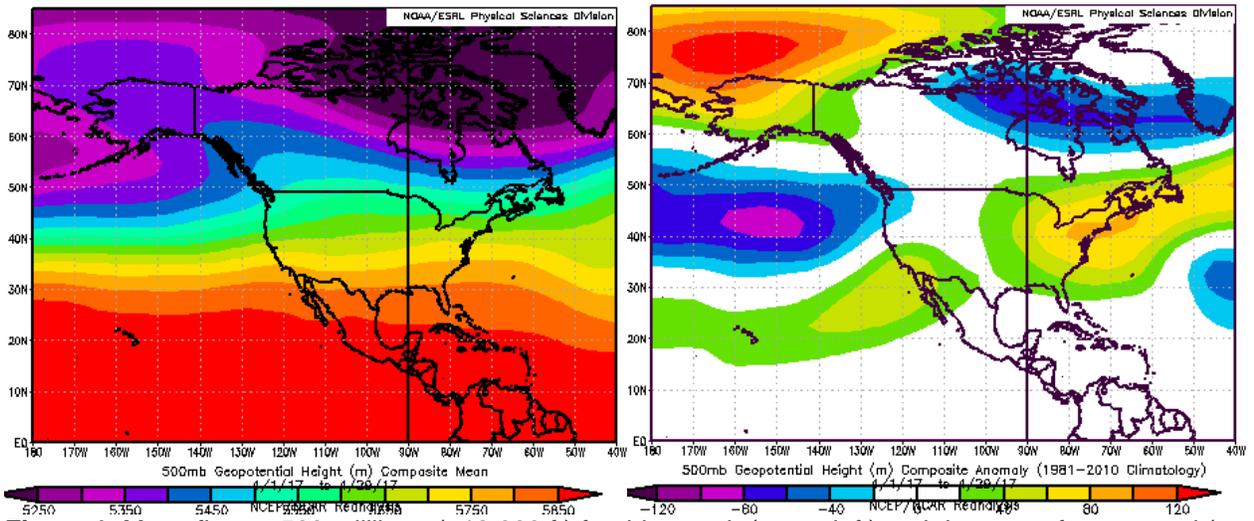


Figure 1. Mean flow at 500 millibars (~18,000 ft) for this month (upper left) and departure from normal (upper right).

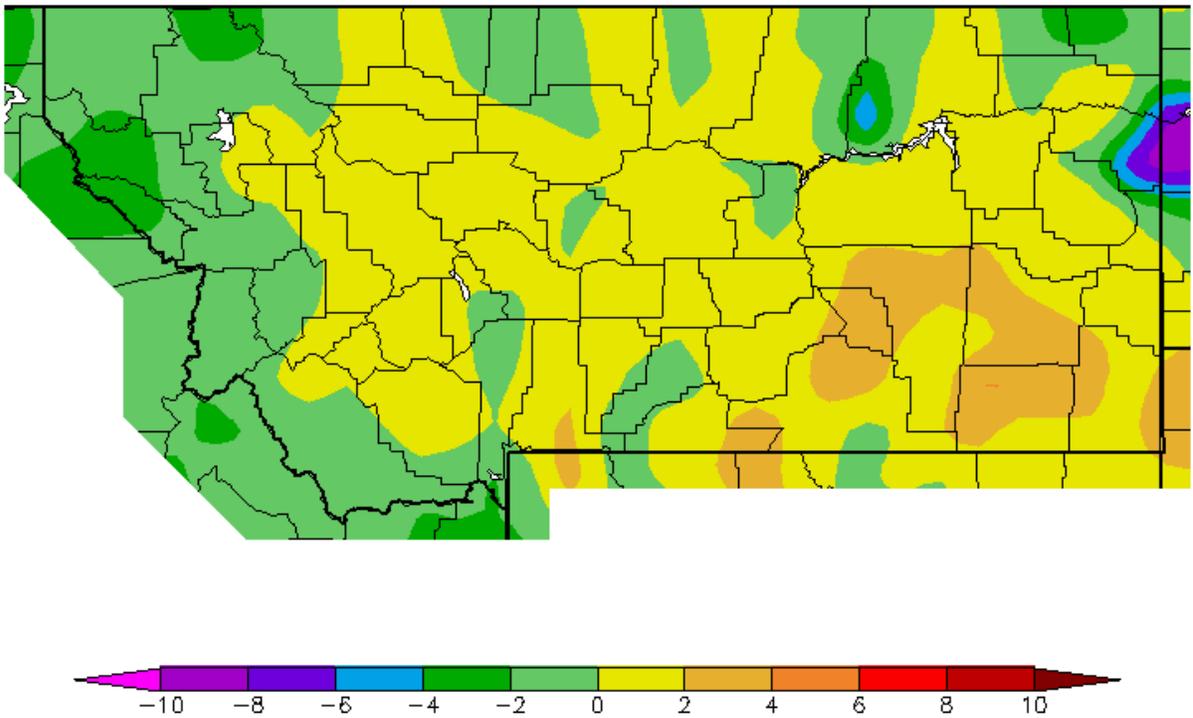


Figure 3. April 2017 temperature departures from normal (°F) (Western Region Climate Center).

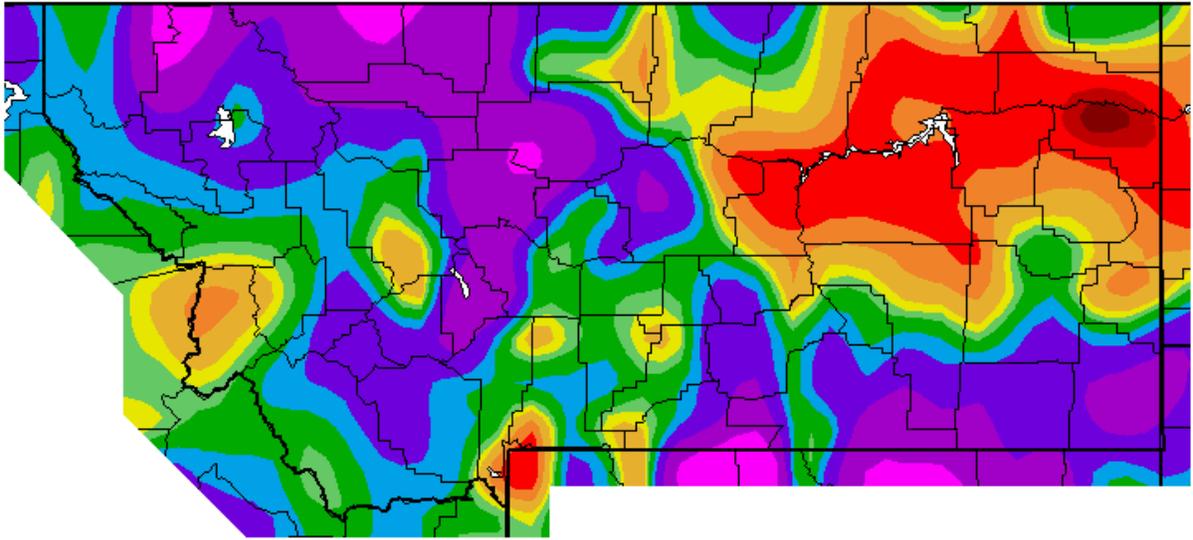


Figure 4. April 2017 precipitation departures from normal (percent) (Western Region Climate Center).

For a state map of % of normal water year precipitation (updated around the 7th of each month), go to:
<http://www.wrh.noaa.gov/tfx/climate/monthlysum/climatesum.php?wfo=txf>

For the latest information on mountain snowpack from the NRCS, go to: <http://www3.wcc.nrcs.usda.gov/snow/index.html>

For the latest U.S. Drought Monitor, issued weekly by the National Drought Mitigation Center, USDA and NOAA, go to:
<http://droughtmonitor.unl.edu/>

These data are preliminary and have not undergone final QC by NEIC. Therefore, these data are subject to revision. Final and certified climate data can be access at the National Environmental Information Center (NEIC) <http://www.ncdc.noaa.gov>. Many more links are on the Drought Information Page of the NWS Great Falls web site at <http://www.wrh.noaa.gov/tfx/main/drought.php?wfo=txf>. The climatological record for normals is 1981-2010. The ranking period for temperature, precipitation and snowfall is since 1880. The ranking period for wind speeds is since 1936. The ranking period for soil moisture is since 1995.